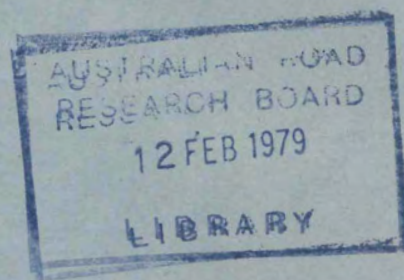


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TASMANIA

1978



DEPARTMENT OF MAIN ROADS

REPORT FOR YEAR 1976-77

Presented to both Houses of Parliament by His Excellency's Command

By Authority:

T. J. HUGHES, Government Printer, Tasmania

1978

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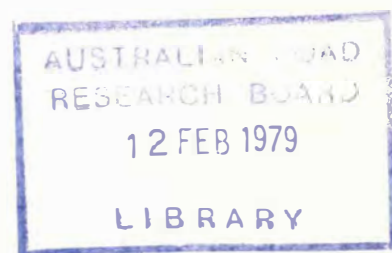


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THE HISTORY OF THE UNITED STATES

BY JAMES M. SMITH

NEW YORK: PUBLISHED BY J. B. LIPPINCOTT & CO., 15 N. 4TH ST. 1877.

DEPARTMENT OF MAIN ROADS

FIRST ANNUAL REPORT
for the year ended 30 June 1977

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DEPARTMENT OF MAIN ROADS

Director of Main Roads—G. E. C. MCKERCHER

Assistant Director—L. J. BAILY

Secretary—K. G. RASMUSSEN

PRINCIPAL OFFICERS — HEAD OFFICE

Assistant Secretary—R. F. READ

Accountant—E. J. MOREY

Principal Engineer (Planning and Design)—C. R. WILLING

Principal Engineer (Construction and Programming)—D. A. WHARMBY

Division Engineer (Planning and Design)—W. D. COOMBS

Division Engineer (Bridges)—I. A. GAGGIN

Division Engineer (Construction and Maintenance)—O. A. WILSON

Division Engineer (Plant)—F. N. LAKIN

PRINCIPAL OFFICERS — DISTRICTS

District Engineer, South-East, Derwent Park—M. G. LINTON

Executive Officer—G. S. GRIGGS

District Engineer, North-East, Launceston—P. A. MEYER

Executive Officer—R. A. PETERS

District Engineer, North-West, Ulverstone—J. H. DRISCOLL

Executive Officer—C. J. MORGAN

DEPARTMENT OF MAIN ROADS

ANNUAL REPORT FOR 1976-77

FORMATION OF THE DEPARTMENT OF MAIN ROADS

Following the State election in December 1976, the Government decided that the Department of Public Works should be abolished and two new Departments formed.

The Department of Public Works as it then existed incorporated an Administration Branch, an Engineering Branch with the responsibility for construction and maintenance of roads and bridges, and an Architectural Branch with responsibility for construction and maintenance of public buildings.

Effective from 1 March 1977, the Engineering Branch and the major part of the Administration Branch became the new Department of Main Roads. The Architectural Branch, together with some of the staff of the Administration Branch, had a temporary existence as the Department of Construction until it was incorporated along with the Housing Department to form the new Department of Housing and Construction.

This recent division of the functions of the Department of Public Works is not the first time such a change has been made, although the previous division was later reversed.

The origins of the State's public works administration go back to the convict system for all the early roads, bridges and buildings were constructed by convict gangs under Overseers of the Civil Establishment. By 1807 the offices of Inspector and Superintendent of Public Works had been created for the settlements on the Derwent and at Port Dalrymple.

An Engineering Department with responsibility for roads, bridges and buildings was established in 1820. In 1827 during the administration of Governor Arthur this Department was divided to form the Engineers' and Architects' Department and a separate Roads and Bridges Department. The Engineers' and Architects' Department was later re-named the Public Works Department.

In 1848 the Roads and Bridges Department and the Public Works Department were amalgamated under the name of the Public Works Department and once again the responsibilities for roads, bridges and buildings were brought within a single administrative structure.

Since that time the Department of Public Works had on several occasions been expanded or contracted to include or shed other smaller administrative or technical functions but throughout the period the responsibilities for roads, bridges and buildings remained within the one Department.

Although the Department of Main Roads was not formally created until 1 March 1977, the Annual Report has been prepared on the basis that it existed from 1 July 1976.

FUNCTIONS OF THE DEPARTMENT OF MAIN ROADS

The functions of the Department of Main Roads are to:—

- Provide advice to Government on roading and civil engineering works generally other than power generation works, water supply and sewerage works.
- Manage and maintain the State Classified Road System and its bridges.
- Plan, design and construct improvements or extensions to the State classified road system.
- Carry out transportation and traffic studies in urban areas.
- Maintain and reconstruct bridges on Council rural local roads and prescribed bridges in town areas.
- Administer State grants of assistance to Councils for the maintenance and construction of rural local roads and urban local roads.
- Plan, design, construct and maintain jetties, slipways, breakwaters, training works and other facilities for fishing vessels and other small craft.
- Review plans and specifications for the capital works of Marine Boards which require Governor-in-Council approval.
- Provide engineering advice and services as requested or directed to other State Departments and Authorities and Councils in connection with the investigation, planning, design, construction and maintenance of roads, bridges, marine works and other civil engineering works.

ORGANISATION OF THE DEPARTMENT

The Department is organised in two Branches, an Administration Branch and an Engineering Branch.

The Administration Branch, headed by the Secretary, Assistant Secretary and Accountant, provides the central services of accounting, internal audit, economic research, staff and personnel, property, correspondence, records, data processing, staff training and industrial safety. The Branch also provides the supporting administrative and clerical staff required by the Engineering Branch and its District Offices, administers the stores in each District and exercises general overview and control of administrative and accounting practices throughout the Department.

The Engineering Branch, headed by the Assistant Director, Principal Engineer (Planning and Design) and Principal Engineer (Construction and Programming), comprises four Head Office Divisions headed by Division Engineers and three regional District Offices headed by District Engineers.

The Head Office Engineering Divisions provide engineering services in the following fields:—

Road Planning and Design Division—

- Planning, design and documentation for construction and reconstruction of urban and rural roads.
- Surveying services for planning, design and construction and for property acquisitions. Survey staffs headed by District Surveyors are attached to the two northern District Offices.
- Transportation, corridor and feasibility studies for urban and rural roads.
- Environmental studies and reports.
- Traffic engineering.
- Right-of-way control.

Bridge Division—

- Investigations, planning and design and documentation for bridgeworks.
- Investigations, planning, design and documentation for general civil engineering works including hydraulic works, drainage, slipways, jetties, breakwaters, training works and other marine works, and general structural work.
- Supervision of major bridge construction in the South-East District and a general overview and control of bridge construction practices in the other Districts.
- Central administration of bridge maintenance.

Road Construction and Maintenance Division—

- Review of District works Programmes.
- General overview and control of road construction and maintenance practices and standards.
- Operation of the central Materials Testing Laboratory and provision of technical advice and testing services to Districts.
- General administration of State Grants to councils for maintenance and construction of rural local roads and urban local roads.

Plant Division—

- Provision and maintenance of construction plant and equipment.
- Management of the central workshops at Moonah and the satellite workshops in the two northern Districts.
- Operation of the motor vehicle pool which services the Department of Main Roads and the Department of Housing and Construction.

The District Offices of the Department are located as follows:—

- South-East District Office — Derwent Park.
- North-East District Office — Launceston.
- North-West District Office — Ulverstone.

The District Offices carry out the maintenance and construction work on the State classified roads in their geographical regions, supervise the work carried out by Councils on Council roads with funds provided by the State and provide technical advice and services to Councils. Each District organisation includes workshops for the servicing and maintenance of construction plant and equipment, stores and materials testing facilities.

Preparation and review of the Department's annual and longer term works programmes and budgets is carried out by a small staff directed by the Principal Engineer (Construction and Programming). Review is aided by a Departmental Review Committee chaired by the Principal Engineer (Construction and Programming) and consisting of the Accountant, Division Engineers and District Engineers.

COMMONWEALTH FUNDS FOR ROADS

During the three year period from 1 July 1974, the Commonwealth made grants to the States for roads under the National Roads Act 1974, the Roads Grants Act 1974 and the Transport (Planning and Research) Act 1974. These three Acts all expired on 30 June 1977.

Although the Commonwealth Minister for Transport advised the States in May 1977 of the principles proposed for the new roads grants legislation, the only legislation passed by the Commonwealth prior to 30 June 1977 was interim legislation covering the three month period from 1 July 1977 to 30 September 1977.

The interim legislation provides grants to the States equal to one-quarter of each State's proposed 1977-78 grants announced by the Commonwealth Minister in February 1977. It is expected that the interim legislation will be subsumed in later legislation.

The principles outlined by the Commonwealth Minister for the proposed new roads grants legislation indicate that the new legislation will be for a three year period from 1 July 1977 to 30 June 1980, and that the grants for National Roads and other road categories will be covered by one Act.

It has also been indicated that the level of grants for 1978-79 and 1979-80 will be held, in real terms, at the same level as the 1977-78 grant. This means that there will be no real increase in the Commonwealth grants to the States for roads during the next three years.

The following table shows the Commonwealth grants to Tasmania for roads in:—

1973-74, the last year of the Commonwealth Aid Roads Act 1969.

1974-75, 1975-76 and 1976-77, the three years covered by the National Roads Act 1974 and the Roads Grants Act 1974.

1977-78 (proposed).

Commonwealth Grants for Roads—1973-74 to 1977-78

		1973-74	1974-75	1975-76	1976-77	1977-78
		\$'000	\$'000	\$'000	\$'000	\$'000
National Highway Construction	....	....	5 330	7 140	8 800	7 900
National Highway Maintenance	....	....	440	590	500	900
Major Commerce Roads	....	....	220	470	700	700
National Roads	....	....	5 990	8 200	10 000	9 500
Rural Arterial Roads	....	3 060	2 940	2 600	2 500	3 000
Rural Local Roads	....	4 340	4 720	4 230	4 100	4 900
Urban Arterial Roads	....	6 340	4 140	4 020	3 000	2 700
Urban Local Roads	....	....	110	250	300	1 000
MITERS*	....	....	500	600	600	600
Roads Grants	....	13 740	12 410	11 700	10 500	12 200
Total	....	\$13 740	\$18 400	\$19 900	\$20 500	\$21 700

*Minor improvements for Traffic Engineering and Road Safety.

The tabulation shows that—

The level of total Commonwealth grants, in real terms, has declined substantially since 1974-75.

The proportion of the total Commonwealth grants allocated for National Roads was 33 per cent in 1974-75, 41 per cent in 1975-76, 49 per cent in 1976-77 and will be 44 per cent in 1977-78.

The total of the grants for rural arterial roads and urban arterial roads, which are mainly the State roads, declined from \$9.40 million in 1973-74 to only \$5.50 million in 1976-77 and will be only \$5.70 million in 1977-78. The decline, in real terms, is of course even more dramatic.

The total of the grants for rural local roads and urban local roads, which are mainly Council roads, will increase to \$5.90 million in 1977-78 from a level of around \$4.40 million per annum over the period 1973-74 through to 1976-77.

The proposed total 1977-78 grant of \$21.70 million is only 6 per cent higher than in 1976-77 and only 18 per cent higher than in 1974-75.

FINANCE

Expenditure

During 1976-77 expenditure by the Department of Main Roads amounted to \$42 038 909. Details of the expenditure for 1976-77 are set out below together with the corresponding figures on expenditure by the Department of Public Works during the previous financial year.

	1975-76	1976-77
	\$	\$
Buildings	39 199 519	....
Roads	27 002 807	28 872 132
Bridges	6 588 632	6 255 699
Plant	400 000	....
Water Supply	35 250	30 000
Jetties	211 202	281 572
Ferries	737 916	211 935
Miscellaneous Engineering	294 365	389 271
Miscellaneous Costs	1 080 137	5 998 300
Administrative Expenses	7 376 986	
	<u>\$82 926 814</u>	<u>\$42 038 909</u>

Sources of Funds

The operations by the Department were financed from funds made available by—

	\$
Department of Main Roads	41 545 489
Other departments and authorities	493 420

Sources of funds were as follows:—

	\$	\$
A. DEPARTMENT OF MAIN ROADS—		
Consolidated Revenue for administration and miscellaneous works	4 808 176	
State Motor Taxation and Fees, Commonwealth receipts for road purposes	31 522 461	
	<u>36 330 637</u>	
Less Refund to Consolidated Revenue contribution to administration costs	3 953 146	
	<u>32 377 491</u>	

Loan Funds for—	\$	\$
Roads, buildings and associated works	5 466 000	
Special projects	227 236	
		5 693 236
Commonwealth assistance in respect of Tasman Bridge Disaster ....	....	2 884 063
Commonwealth assistance second Hobart Bridge ....	....	590 699
B. OTHER DEPARTMENTS—		
Revenue	1 647	
Other Funds	492 873	
		493 420
		<u>\$42 038 909</u>

Commonwealth Grants

These grants are made under the provisions of the National Roads Act 1974, the Roads Grants Act 1974 and the Transport (Planning and Research) Act 1974. The total grant to the State under these Acts in 1976-77 amounted to \$20 716 000, an increase of \$618 666 (3 per cent) on the previous year. Details of the amounts granted in 1976-77 for the various categories and a comparison with the amounts in 1975-76 are set out below:—

	1975-76	1976-77
	\$	\$
National Roads	8 200 000	10 000 000
Rural Arterial Roads	2 600 000	2 500 000
Rural Local Roads	4 230 000	4 100 000
Urban Arterial Roads	4 020 000	3 000 000
Urban Local Roads	250 000	300 000
MITERS*	600 000	600 000
Transport Planning and Research	197 334	216 000
	<u>\$20 970 334</u>	<u>\$20 716 000</u>

*Minor improvements for Traffic Engineering and Road Safety

State Highways Trust Fund

The State Highways Trust Fund Account is established under section 4 (1) of Roads and Jetties Act 1935.

The Trust Fund is credited with the following items:—

- (1) All moneys received from the Australian Government under the Roads Grants Act 1974, National Roads Act 1974 and the Transport (Planning and Research) Act 1974.
- (2) All motor taxes.
- (3) Net registration fees in respect to motor vehicles; licence fees for drivers; and net renewal and transfer fees.
- (4) Public vehicle fees under section 20A of the Traffic Act 1925.
- (5) Revenue from jetties.
- (6) Contributions by municipal councils towards the maintenance of subsidiary roads.
- (7) Sale of stores and materials (other than plant).
- (8) Any moneys provided by Parliament for the purposes of the fund.
- (9) Such other moneys (if any) as the Treasurer may direct.

The Trust Fund is debited with the following items:—

- (a) Expenses incurred in the construction and maintenance of State Highways and subsidiary roads.
- (b) Costs incurred in the maintenance of country roads which the Minister has agreed to subsidise.

- (c) Contributions to Bruny, Flinders and King Island Municipalities of portion of the motor taxes collected in those municipalities.
- (d) All sums expended from Australian Government grants pursuant to Commonwealth roads legislation (National Roads Act 1974, Road Grants Act 1974 and Transport (Planning and Research) Act 1974.
- (e) Costs of stores and materials (other than plant).
- (f) Repair and renewal of bridges.

A summarised statement of account for the State Highways Trust Fund for the year ended 30 June 1977, is shown below:—

<i>Receipts</i>	
	\$
Balance brought forward from 1975-76	625 782
Commonwealth grants for roads	20 716 000
Motor taxation	10 250 597
Public vehicle fees	779 436
Miscellaneous receipts and refunds	434 353
Suspense Account ....	....
	\$32 806 168

<i>Expenditure</i>	
	\$
National Highways	10 014 324
Export Roads	786 133
Rural Arterial Roads	7 207 155
Rural Local Roads	6 119 930
Urban Arterial Roads	5 920 326
Urban Local Roads	925 341
Minor Improvements for Traffic Engineering and Road Safety	495 121
Transport Planning and Research	527 205
Tasman Bridge Disaster Suspense Account	289 235
Balance carried forward	521 398
	\$32 806 168

Tasman Bridge Emergency Works

Over the past three years the Commonwealth has provided special financial assistance to the State in respect of the Tasman Bridge disaster. During the year under review the Department carried out a wide range of emergency works at a total expenditure of \$2.88 million. The amounts expended under the various categories of works are shown below:—

	\$
Roadworks	2 124 390
Bridgeworks	562 532
Ferries	167 935
Jetties	27 995
Miscellaneous	1 211
	\$2 884 063

ROAD CONSTRUCTION PLANT SUSPENSE ACCOUNT

Section 6 of the Roads and Jetties Act 1935 provides for the setting up of the Road Construction Plant Suspense Account for the purpose of the operation, maintenance, replacement and renewal of plant and equipment for the construction and maintenance of roads and bridges by the Department. The Account is credited with all money received in respect of plant hire and workshop charges and debited with all the costs associated with the operation, maintenance, replacement and renewal of plant and equipment and other costs incidental thereto.

The financial statements for the period under review reveal an operational surplus of \$546 475 as compared with a surplus of \$1 259 154 earned during the previous year. \$325 000 of the current period's surplus has been transferred to the Plant Replacement Reserve.

During the period total income decreased by \$201 053 due in the main to the downturn of work on projects associated with the Tasman Bridge disaster.

Expenditure during the period increased by \$511 620 with expenditure on workshop operations, plant depot administration and provision for depreciation being the main contributors to the increase.

The financial statements for the Road Construction Plant Suspense Account are tabulated in Appendix 8.

PROJECT REVIEW

Devonport to Don Freeway

The final section of the Devonport to Don Freeway between Middle Road and Don was opened to traffic on 19 April 1977. The completed freeway, and extension of the earlier Victoria Bridge project, provides a dual carriageway by-pass of Devonport for through traffic and substantially reduces traffic congestion in the town centre and surrounding streets.

Completion of the project has enabled the Department to hand over to the Devonport Council the responsibility for the old route of the Bass Highway through the town.

The new freeway was constructed partly through swamp land considered unsuitable for residential development. It was necessary to install large longitudinal trunk drains and cross drains to ensure adequate drainage and this work, together with placement of surplus fill material, has substantially improved the area adjoining the freeway.

In conjunction with road construction the Department carried out landscaping and planting of trees and shrubs and as these develop the freeway reservation will become a very attractive part of Devonport.

Ulverstone By-Pass

With the opening of Stage A of the Burnie Highway System in March 1977 and the Devonport to Don Freeway in April 1977, the Ulverstone By-Pass now ranks as the major continuing project in North-West Tasmania.

At present the Bass Highway runs through the full length of Ulverstone crossing the Leven River on an inadequate two-lane bridge adjacent to the main commercial and business centre of the town.

The by-pass will be 7.2 km in length and will pass through mostly open country south of the town. The Leven River will be spanned by a bridge 162 metres long with a connecting causeway 270 metres long over the sand flats on the western approach. Local traffic will be served by interchanges west and east of the town at South Road and Forth Road and grade separation structures will be provided at Castra and Preston Main Roads.

Works undertaken on the project during 1976-77 included near completion of earthworks on the section west of the Leven River, construction of an 0.7 km access road to a severed area of land south of the highway west of the river and placement of material to form the causeway across the sand flats for access to the new Leven River Bridge.

Work on the new bridge commenced in July 1976 with construction of formwork across the river for pile driving and pier construction. The driving of piles was well advanced at the end of the year and coffer dams were under construction at two piers. One abutment was almost completed and twelve of the twenty-four post-tension prestressed concrete bridge girders had been manufactured.

Of special interest is the diversion of Masons Creek on the eastern side of the river. The diversion is a large concrete pipe conduit nearly 0.5 km long and is one of the largest concrete pipe structures constructed by the Department.

In May 1977 work commenced on the South Road Underpass, a key structure in the South Road Interchange, and an early start is planned on the Preston Main Road Underpass which will provide grade separation at Lovett Street.

Burnie Highway System — Stage A

Stage A of the new Burnie Highway System was opened to traffic on 30 March 1977. The completed stage connects the Bass Highway east of the town with Alexander Street by an elevated roadway over the port access road and the rail lines.

Development of the Burnie Highway System, which is to be carried out in three stages, will eventually ease traffic congestion in the town centre. Future stages of development will take highway traffic from Alexander Street on a new alignment across Burnie to West Park.

During construction of Stage A many major services were relocated and all existing overhead services were placed underground. Eighteen houses and commercial buildings had to be acquired for demolition to allow construction to proceed.

A traffic study is being carried out to assess the effectiveness of the traffic management achieved by Stage A and determine whether there is a warrant for early commencement of the second stage of development.

Deloraine By-Pass

The question of the route to be adopted for a Bass Highway by-pass of Deloraine remained unresolved at the end of 1976-77. During the year further investigations and discussions between the Department and the Deloraine Council failed to establish agreement.

For some years the Department had recognised that there would eventually be a need for the highway to be deviated away from the town centre and preliminary planning and some property acquisition had been done. The original proposal, now known as the central route, was brought forward for review and preparation of a highway planning report when the Bass Highway was declared as part of the National Highway system.

In reviewing the original proposal the Department developed and assessed five routes, including the central route. Three other routes to the north of the town and one to the south were included in the study. Each route was assessed in terms of construction and maintenance costs, land acquisition and severance costs, vehicle operating costs and social and environmental impact.

After the initial assessment of all five routes a reassessment was made of the central route, the southern route and the northern route. Following these investigations the Department proposes to recommend that the northern route be adopted. However, the Deloraine Council has objected strongly to all options except the southern route.

Within this context it is intended to complete further comparative investigations and assessments of the northern and southern routes and submit the highway planning report to the Commonwealth Department of Transport with the Department's recommendation for the northern route and a statement of the Council's objection to that recommendation.

East Tamar Outlet Road

The length of the East Tamar Outlet Road now under construction commences at the Charles Street Bridge in Launceston and connects with George Town Road near the junction with Invermay Road and Alanvale Road.

The southern section of the outlet commences at Charles Street Bridge and terminates at the junction with the Mowbray Connector and Invermay Road. The northern section of the outlet skirts the Launceston Church Grammar School, the Northern Division of the Tasmanian College of Advanced Education and Brooks High School and terminates at the junction of the Alanvale Connector and George Town Road.

The outlet road will have dual carriageways and the Mowbray and Alanvale Connectors will provide access to the suburbs of Mowbray, Newnham, Alanvale and Rocherlea.

Work on the project commenced in 1973-74 with the construction of a 1.5 metre high embankment between Lytton Street and the Mowbray Connector, a distance of 1.20 km. This embankment was constructed over the mud flats along the Tamar River and was still consolidating during 1976-77. Settlements of over one metre have been recorded during surcharged loading of this embankment.

Another embankment 0.50 km long has been constructed along the river bank north of the Mowbray Connector. During 1976-77 a sheet pile retaining wall was driven to stabilise a section of this embankment close to the ship navigation channel at Stephensons Bend.

Also during this year excavation work was completed between Howard Street and Lytton Street and the base course of the road pavement was laid. At the end of 1976-77 the section from Charles Street Bridge to Lytton Street was substantially completed and construction of the Mayne Street Overpass was nearing completion.

West Tamar Outlet Road

Construction of a second carriageway on the West Tamar Outlet Road north of Paterson Bridge has presented major engineering problems. The entire length of the new carriageway is constructed on embankments over river mud flats and it was essential to achieve adequate consolidation and stability of the embankment before road construction could proceed further.

Consolidation has been achieved by surcharging the embankments and by installation of a system of sub-soil drainage of a type new to Australia. No doubt the lengthy period required for consolidation of the embankments caused some frustration but it was essential to achieve stability before the roadway was constructed and opened to traffic.

During 1976-77 the Department was able to carry out final work on the embankments, construct the pavement and complete the 1.60 km long carriageway.

Bass Highway — Deloraine to Latrobe

Reconstruction of the Bass Highway from Deloraine to Latrobe commenced in September 1970 and was planned for a design speed of 80 k.p.h. In November 1974 the Bass Highway was declared a National Route and the standard of construction was raised to comply with the design speed of 100 k.p.h. The project, which extends over a total distance of 40 km, is programmed for completion in 1977-78. During 1976-77 nearly \$1 million was expended on this reconstruction.

The highway traverses highly developed agricultural land in the Deloraine and Sassafras areas and the reconstruction has required extensive ancillary works including side road junctions, private accesses, stock underpasses, irrigation conduits, relocation of a saw mill and demolition of the old Post Office and shop at Sassafras. The Sassafras Tennis Club court and shelter had to be demolished but a new court was constructed in the grounds of the Sassafras Primary School and both club members and school pupils now share the benefits of the new court.

Where the reconstructed highway is located outside the old reservation, the arrangements made for land acquisition provide for the old road pavement to be completely removed, the area reinstated with top soil and fenced into adjacent properties. In disposing of surplus unsuitable excavated material, every effort was made to use it to best advantage and many areas adjacent to the road have benefited from improved drainage as the road progressed. Landscaping and extensive planting of trees and shrubs have closely followed the reconstruction.

Hobart Eastern Outlet Road

The most difficult phase in construction of the Eastern Outlet Road is at Rosny Hill where an interchange is required for the junction of the new outlet road and the existing Tasman Highway. The interchange involves construction of a curved overpass bridge and the excavation of approximately 90 000 cubic metres of rock. Each construction stage has had to be carefully programmed to ensure maintenance of traffic flow.

Construction of the interchange poses many problems because of the very high traffic volumes normally using the Tasman Highway over Rosny Hill. However, these problems were diminished by the closure of Tasman Bridge which greatly reduced traffic and made working and safety conditions far better than had been

expected. In fact it would have been possible for the Department to complete much more of the project had it not been necessary in the months immediately following the bridge disaster to undertake major emergency roadworks in other areas of the Eastern Shore.

In April 1977 work commenced on the construction of the Rosny Hill overpass which will carry two lanes of out-bound traffic from Tasman Bridge over the Eastern Outlet Road to Bellerive. The two span structure of prestressed concrete box girder design is expected to be completed during 1977-78

Brooker Highway Extension

The Brooker Highway Extension will take this highway from Berriedale through to Claremont and ultimately to Granton. At the end of 1976-77 the 2.8 km section from Berriedale to Claremont Link Road was nearing completion and opening to traffic.

This section includes the Berriedale Interchange where the Brooker Highway crosses the Midland Highway and the adjacent rail line. Because of its complexity and the need to cause minimum interference to traffic, the interchange will be opened to traffic in two stages. In the first stage of opening the interchange will provide only one lane in each direction on one carriageway of the Brooker Highway. This is necessary for diversion of traffic from existing roads to permit completion of the second carriageway of the Brooker Highway Extension and other works in the interchange area.

In preparing the design of the interchange the major considerations were traffic capacity and safety, total project cost and impact on the environment. The design was not without its problems because it was essential to minimise encroachment on existing streets and residential properties. The need to minimise encroachment precluded some design features which might otherwise have been adopted. The final design selected and constructed provides an effective economic traffic facility.

A development of this type must, to some extent, impinge on the environment of the area. In the completed work the impact is quite acceptable and will be reduced when landscaping and planting of three hectares of road reservation have been completed.

Midland Highway

Throughout 1976-77 work proceeded on construction of a major deviation of the Midland Highway from Melton Mowbray extending north for a distance of 5 km. The deviation, which will ultimately replace a narrow sub-standard section of the highway, will provide an improved road alignment with overtaking lanes where these are warranted.

Construction of the deviation is an extension of previous reconstruction work south of Melton Mowbray. It is expected that the deviation will be completed during 1977-78.

During the year the Department completed reconstruction of the section of highway from just north of Kempton through to Melton Mowbray and a temporary prime seal was laid on the road surface to carry it through the winter to the road sealing season in the spring of 1977.

Further south on the previously reconstructed section from Mangalore to just south of Kempton the final road surface sealing was placed on Constitution Hill. In the Bagdad area landscaping and planting of trees and shrubs was completed.

South of Melton Mowbray the only part of the highway not reconstructed is the section through the town of Kempton. Construction of a deviation to by-pass the town has been deferred pending completion of further investigation of the proposed route.

At the St Peters Pass roadside rest area north of Oatlands stone-work was completed for a toilet block and shelter building. The facility is built from sandstone blocks recovered from the abutments of the old St Pauls River Bridge at Avoca.

PLANNING AND DESIGN

Changes in community attitudes to highway and transport developments, environmental protection legislation at both Commonwealth and State levels and, in particular, the progressive reduction in the real level of funds available for road construction have had a substantial impact on the planning and design activities of the Department.

An increasing proportion of staff time is being directed towards ensuring that new projects, particularly those in urban areas, are compatible with local and regional planning and of a form acceptable to local authorities and local communities. To achieve these objectives traffic studies, environmental impact studies and public consultation programmes have been carried out.

Regional and local planning issues have been dominant in the planning and design for urban arterial roads in both Hobart and Launceston. In the towns on the Midland and Bass Highways affected by the National Highway programme, local planning issues and the impact of road development have generated a good deal of public interest and debate.

The Department has had to adjust traditional procedures of planning and design to take account of the input from public consultation and the experience gained in the past year or two has been valuable in developing and refining techniques for future application.

Senior planning and design officers represent the Department on Interstate committees concerned with traffic engineering, transport planning and environmental matters. While this participation in committee activities involves cost in staff time and travel, it is offset by the benefits of keeping up-to-date with developments in each field and with the work being done by other State Road Authorities.

Some information on planning and design activities during 1976-77 is set out in Appendix 6.

ADMINISTRATION

Staffing

The following table shows the actual staffing establishment of the Department at 30 June, 1977:—

Public Service Staff—							
Male	....	....	....	....	....	....	322
Female	....	....	....	....	....	....	58
Temporary Staff—							
Male	....	....	....	....	....	....	8
Female	....	....	....	....	....	....	4
Public Works Construction Act Staff	....	....	....	....	....	....	26
							418

The composition of the establishment at the end of the year was:—

Administrative Officers, Accountants, Clerical							
Officers	....	....	....	....	....	....	117
Engineers	....	....	....	....	....	....	83
Surveyors and Survey Staff	....	....	....	....	....	....	37
Scientific Officers, Technical Officers, Engineering Assistants, Technicians							
	....	....	....	....	....	....	68
Draughtsmen	....	....	....	....	....	....	55
Secretarial Assistants, Typists, Machinists	....	....	....	....	....	....	37
Other Classifications	....	....	....	....	....	....	21
							418

The distribution of the staff was as follows:—

Head Office, Murray Street, Hobart	....	231
South-East District Office, Derwent Park	....	22
Materials Laboratory, Derwent Park	....	30
Central Depot and Workshops, Moonah	....	49
North-East District Office, Launceston	....	47
North-West District Office, Ulverstone	....	39
		418

The following officers retired after long periods of service:—

L. J. Martin, Assistant Secretary (42 years' service).

E. J. Morey, Chief Accountant (39 years' service).

Mrs E. R. Sommerville (10 years' service).

Study Courses and Staff Training

At the end of the year thirty-four officers were undertaking assisted study courses and eight engineering students were attending the University of Tasmania full-time under scholarship agreements. During the year twenty-four staff training courses were conducted.

Property Acquisitions

During 1976-77 a total of 230 new acquisitions were commenced and at the end of the year 416 acquisitions were in progress, of which thirty-seven were subject to compulsory process. Expenditure on property acquisitions for the year was \$1 678 937 compared with \$978 546 in 1975-76.

Major areas of expenditure were in Launceston for properties affected by the East Tamar Outlet and Mowbray Connector, and in Ulverstone for properties for the Ulverstone By-Pass. Other important areas of expenditure were for the reconstruction of the Midland Highway, Stage A of the Burnie Highway System, Hobart Eastern Outlet Road, Brooker Highway Extension and reconstruction of the Bass Highway between Deloraine and Latrobe.

The reconstruction of the Blessington Main Road, Nubeena Secondary Road, Frankford Main Road, Sandfly Secondary Road and Elderslie Main Road required many minor acquisitions of properties.

Because of hardship experienced by some property owners following announcement of road proposals, the Department has acquired a number of residential or commercial properties in advance of requirements and fifty-eight of these are leased to tenants. Vacant land acquired in advance is also leased until required and at present fifty-two parcels of land are under lease.

INDUSTRIAL

General

Wage increases received by employees during the year were mainly as a result of National Wage increases.

Following negotiations between unions representing metal trades employees and the Government, tradesmen in the metal trades area were granted wage increases to bring their wages into line with those paid to tradesmen employed under the awards of State Industrial Boards. This resulted in the previous over-award payments to three grades of plant mechanics being absorbed.

Further results of the negotiations were the decision to issue work clothing and safety footwear to all workshop and field employees and the provision for ten days sick leave per year to conform with the provision applying under the awards to State Industrial Boards.

Employment

The following statistics show the numbers of employees engaged with the Department at the end of the year—

Depots and Workshops	....	....	....	....	240
Road and Bridge Construction and					
Maintenance	....	....	....	....	772
Plant Operators	....	....	....	....	285
					1 297

Rehabilitation

During 1976-77 the Rehabilitation Committee continued investigations, assessments and placements in alternative employment where possible of employees who through disease, age or injury could not carry out their normal occupations. The Committee met regularly throughout the year and eighteen cases were examined and assessed.

Industrial Safety

Throughout the year the Department continued its safety training programme for improving safety conditions and promoting a greater awareness of the importance of measures to prevent accidents.

The Safety Officer conducted safety training sessions at road and bridge construction sites and workshops throughout the State and training sessions were also held at construction sites to instruct employees on fire prevention and efficient operation of fire-fighting equipment.

First-year apprentice safety training sessions were conducted at all workshops and other apprentices were required to attend safety lectures during the year.

Other activities related to promoting safety included the testing of clothing and equipment used by employees and as a result of these tests suitable protective clothing was issued to all employees engaged on road sealing and hot mix operations.

In keeping with the Department's objective of having at least one employee at each location qualified as a first aid attendant, appropriate training courses were conducted in each of the three Districts. The results of these courses were excellent. Thirty-four employees gained the higher first aid voucher and fifty-two the first aid certificate.

For most of the year the Department's safety record continued to improve but near the end of the year two separate tragic accidents took the lives of two young employees.

ACKNOWLEDGMENT

I express appreciation to the staff and employees of the Department for their work throughout the year and the way they have responded to all demands placed upon them.

On behalf of the Department I extend thanks to all the State and Commonwealth Departments and Local Government bodies which have co-operated with or provided assistance to the Department during the year.

G. E. C. McKERCHER, Director of Main Roads.

Appendix 1

EXPENDITURE ON CLASSIFIED ROADS, 1976-77

Total expenditure for the year on road maintenance, road construction and reconstruction and resealing work on the Classified Road System was \$20 896 401, an increase of 27 per cent on expenditure in 1975-76. The following table shows the expenditure dissected by District and type of work.

District							Maintenance	Construction & Reconstruc- tion	Resealing	Total
							\$	\$	\$	\$
South-East	....	....	....	....	....	....	1 192 114	7 109 645	330 191	8 631 950
North-West	....	....	....	....	....	....	960 001	4 178 492	313 280	5 451 773
North-East	....	....	....	....	....	....	1 192 439	4 916 507	303 488	6 412 434
West	....	....	....	....	....	....	293 484	29 032	77 728	400 244
Total	....	....	....	....	....	....	3 638 038	16 233 676	1 024 687	20 896 401
1975-76	....	....	....	....	....	....	3 373 543	12 281 757	786 133	16 441 433
Per cent Increase on 1975-76	....	....	....	....	....	....	+7.84	+32.17	+30.34	+27.09

(Expenditure on Bridgeworks and Tasman Bridge Disaster Works not included)

Appendix 2

GRANTS TO COUNCILS, 1976-77

During the year the Department made grants of financial assistance to councils for works on roads controlled by councils. The amounts of the grants for the categories of roads and different types of work were as follows:—

		\$	\$
RURAL LOCAL ROADS—			
Maintenance	....	942 192	
Construction	....	750 406	
\$ for \$ Sealing	....	681 514	
School Bus Routes	....	190 671	
Settlers' Roads	....	183 769	
Flood Damage	....	89 575	
			2 838 127
URBAN LOCAL ROADS—			
Maintenance	....	109 529	
Construction	....	367 965	
\$ for \$ Sealing	....	113 473	
School Bus Routes	....	13 500	
Settlers' Roads	....	2 900	
Flood Damage	....	5 000	
			612 367
RURAL ARTERIAL ROADS—			
Construction	....	94 074	
\$ for \$ Sealing	....	34 797	
			128 871
URBAN ARTERIAL ROADS (CONSTRUCTION)	....		26 130
*MITERS	....		190 559
			3 796 054
SUBSIDISED ROADWORKS	....		77 744
BRIDGEWORKS (CARRIED OUT BY DMR)	....		974 324
			\$4 848 122

* Minor Improvements for Traffic Engineering and Road Safety

Appendix 3

ROAD CONSTRUCTION AND RECONSTRUCTION, 1976-77

During the year the following construction and reconstruction works (minor works omitted) were carried out on Classified Roads and on roads improved as a result of the Tasman Bridge disaster.

National Highways and Major Commerce Roads—

Bass Highway—

- | | | |
|--|-------|-----------|
| 1. Deloraine to Latrobe | ..... | \$982 812 |
| Reconstruction of the Bass Highway from Deloraine to Latrobe commenced in September 1970 and this 40 km project is programmed for completion during 1977-78. | | |
| 2. Junction with Surrey Hills Road | ..... | \$22 422 |
| Junction improvements were completed. | | |
| 3. Junction with Castra Main Road & Finch Street | ..... | \$12 835 |
| Junction improvements were completed. | | |
| 4. Latrobe to Devonport | ..... | \$14 190 |
| Consultants' Fees. | | |
| 5. Devonport to Don Freeway | ..... | \$885 046 |
| The final section of the Devonport to Don Freeway between Middle Road and Don was opened to traffic on 19 April 1977 providing a dual carriageway by-pass for Devonport. | | |
| 6. Oakleigh Crossing to Surrey Hills Road | ..... | \$132 967 |
| Duplication of carriageway. | | |
| 7. Ulverstone By-Pass | ..... | \$501 508 |
| The By-Pass, which is 7.2 km in length, passes through mostly open country 0.5 km south of the Ulverstone town centre. Grade separation structures are to be provided at Castra and Preston Main Roads as well as at the eastern and western end interchanges allowing uninterrupted flow for through traffic. Work on the 7.2 km by-pass commenced in January 1976 and major works to the end of 1976-77 included near completion of the western shore earthworks; construction of a 0.7 km access road to severed land south of the highway on the western shore; placement of dual carriageway causeway material to provide access to the Leven River Bridge from the western shore; near completion of the river bridge piling under difficult foundation conditions; and construction of 12 of the 24, 27 metre long prestressed concrete beams for this 170 metre long by 10.9 metre wide structure. | | |
| 8. Burnie Highway System Stage A | ..... | \$516 067 |
| This project, commenced in 1972-73, was opened to traffic on 30 March 1977 and is the first stage of the Burnie Expressway which will carry traffic through the town area without conflict with town traffic. | | |

9. Wivenhoe	\$14 988
Construction of Sea Wall.	
<i>Midland Highway—</i>	
1. Granton to Oatlands	\$1 829 483
This work involved major construction between Kempton and Melton Mowbray and between Melton Mowbray and Lovely Banks. It also included minor works at Bagdad and Constitution Hill.	
2. Tunbridge to Oatlands	\$199 563
Work completed to Oatlands.	
3. St Peters Pass Rest Area	\$32 452
Work continued on this project.	
4. Junction with Gunn Street, Bridgewater	\$19624
Junction improvements were completed.	
5. North of Perth to Spikey Bridge	\$15 141
Construction continued.	
<i>East Tamar Highway</i>	\$471 866
Construction of climbing lanes completed.	
Rural Arterial Roads—	
<i>Arthur Highway—Dunalley to Eaglehawk Neck</i>	\$75 270
Strengthening existing pavement.	
<i>Huon Highway—Huonville to Geeveston</i>	\$691 268
Reconstruction and improvements to alignment of existing road.	
<i>Lyell Highway—</i>	
1. Q29 to Derwent Bridge	\$22 461
Work undertaken during the year included clearing of slips as they occurred; treatment of slips on the fill side of the road; drainage of springs in the road pavement; and construction of geological feature layby at Surprise Valley.	
2. New Norfolk to Gretna	\$12 444
Flood raising near Rosegarland was completed.	
<i>Tasman Highway—</i>	
1. Runnymede to Swansea	\$79 454
Work continued on strengthening of shoulders and improvements to drainage.	
2. Kelvedon Bridge Approaches	\$62 333
Construction of road approaches was completed.	
3. Widening at Pyengana	\$96 276
2.8 km was widened and sealed between L134.7 and L137.5.	
4. Scottsdale to Derby	\$508 786
1.3 km between L66.7 and L68.0 was sealed and 3.7 km under reconstruction between L68.0 and L71.7.	
5. Fern Tree Glen Bridge Road Approaches	\$83 564
Earthworks and gravelling completed to surface level.	
6. Lightwood Bridge Road Approaches	\$62 104
Construction of road approaches was completed.	

Waratah Highway—

- | | | |
|---|-------|-----------|
| 1. Somerset to West Takone | ..... | \$250 402 |
| This project was commenced in 1975-76 and at the end of the 1976-77 financial year, a total of 0.9 km was completed, commencing 0.95 km from the Bass Highway at Somerset and ending at the Old Cam Road. | | |
| 2. Hellyer Gorge Rest Area | ..... | \$24 610 |
| Completion of new toilet block and septic tank. | | |

Brumby Main Road—

- | | | |
|--|-------|----------|
| Church Street to Lunawanna | ..... | \$75 001 |
| Reconstruction continued with widening and base course only to this stage. | | |

<i>Bridport Main Road</i>	.....	\$60 449
Gravelling 80 per cent, complete.		

<i>Colebrook Main Road</i>	.....	\$29 737
A retaining wall was constructed and road realigned at slip area.		

<i>Esk Main Road</i>	.....	\$351 315
The sections between L11.9 to L12.9 and L16.4 to L18.2 were sealed.		

<i>Fenton Main Road</i>	.....	\$9 940
Work commenced on raising of the road above low-level flooding.		

<i>King Island Main Road</i>	.....	\$21 264
0.6 km was strengthened between Crowes Road and Grassy.		

<i>Lake Leake Main Road</i>	.....	\$148 879
This project is being undertaken by both the Glamorgan Council and the Campbell Town Council on behalf of the Department.		

<i>Lilydale Main Road</i>	.....	\$142 761
1.4 km completed to finished surface level.		

<i>Barnards Creek Bridge Road Approaches</i>	.....	\$7 066
Gravel placed to finished surface level.		

<i>Mersey Main Road</i>	.....	\$90 809
Stoney Rise Main Road to Sheffield Main Road. Co-operation between the Devonport Municipal Council and the D.M.R. enabled full-width construction with kerb and channel and footpaths for over 1 km of a total reconstructed length of 1.5 km of the Mersey Main Road through Spreyton.		

<i>Nubeena Secondary Road</i>	.....	\$287 272
Continuation of reconstruction and improvements to alignment.		

Pipers River Secondary Road—

- | | | |
|---|-------|----------|
| 1. Hot mix sealing and a section of gravel overlay. | ..... | \$23 553 |
| 2. Lady Nelson Creek Bridge Road Approaches | ..... | \$47 844 |
| Construction of road approaches was completed. | | |

3. Barretts Creek Bridge Road Approaches	\$28 583
Construction of road approaches was completed.	
4. Dead Horse Creek Bridge Road Approaches	\$49 952
Construction of road approaches was completed.	
<i>Rossarden Secondary Road</i>	\$201 828
5 km between 6.2 km to 11.2 km 90 per cent complete to finished surface level.	
<i>Storeys Creek Secondary Road</i>	\$28 950
Drainage works.	
<i>Strahan to Zeehan Road</i>	\$540 376
Work undertaken for the year was continuation of earthworks and drainage south from Pyramid Creek toward the Little Henty River, and work on a major deviation of approximately 5 km north of the Henty River.	
Rural Local Roads—	
<i>Blessington Main Road</i>	\$155 054
Reconstruction completed.	
<i>Hillwood Main Road</i>	\$17 352
Reconstruction completed.	
<i>Low Head Main Road</i>	\$219 357
Macquarie to Davies Street gravelled but unsealed. Deviation completed.	
<i>Bream Creek Secondary Road</i>	\$166 309
Reconstruction to sub-base on section from Copping to School.	
<i>Grass Tree Hill Secondary Road</i>	\$61 624
Reshaping existing road and bituminous surfacing.	
<i>Nubeena Secondary Road</i>	\$94 655
Completion of reconstruction of section at Nubeena. Reconstruction of existing road to sub-base stage.	
<i>Randalls Bay Secondary Road</i>	\$35 894
Continuation of reconstruction and sealing work carried out by Council.	
<i>Scotts Secondary Road</i>	\$12 581
Reconstruction completed.	
Urban Arterial Roads—	
<i>Channel Highway-Grange Corner</i>	\$9 250
This work has now been completed. Work carried out by Council.	

<i>Eastern Outlet Road</i>	\$1 311 384
Commencement of construction of Rosny Hill Interchange, involving major cuttings at Rosny Hill and preliminary earthworks between Rosny Hill and Dampier Street.	
<i>East Tamar Outlet</i>	\$836 891
Main Street excavation completed and surface course gravel placed, as well as embankment works.	
<i>Northern Outlet Road—</i>	
1. Berriedale — Allunga Road	\$1 214 100
Continuation of construction of Outlet Road and construction of first stage Berriedale Interchange nearly completed. Portion hot mix surfaced. Section Berriedale Interchange to Allunga Road completed to primer seal over major part of length.	
2. Link Road to Granton	\$18 289
Alterations to watermain and construction of box culvert at Faulkner's Rivulet.	
<i>Southern Outlet Road</i>	\$197 300
Commencement of widening for climbing lane from the 'Lea' turn-off to Nelson Saddle.	
Pavement constructed.	
<i>Tasman Highway — Tasman Bridge</i>	\$15 247
Commencement of widening for fifth lane. Service alterations put in hand and retaining walls constructed.	
<i>Paterson Bridge Road Approaches</i>	\$449 238
Surface base course of northern approaches completed (1.6 km). Some landscaping to be completed.	
<i>Bathurst Street Extension</i>	\$24 724
Hot mix and landscaping carried out by Launceston City Council.	
<i>Blessington Main Road</i>	\$417 730
Continuation of reconstruction.	
<i>Rokeby Main Road</i>	\$46 615
Reconstruction of kerb-side traffic lanes for clearway from Clarence Street to Bellerive Roundabout.	
<i>Sandfly Secondary Road</i>	\$319 310
Reconstruction completed. This road is now sealed over its entire length.	
Urban Local Roads—	
<i>Elderslie Main Road</i>	\$258 586
Completion of reconstruction of road for 3.75 km from Midland Highway towards Broadmarsh.	
<i>Kingston Main Road</i>	\$47 917
Widening and strengthening. Work carried out by Council.	

MITERS (Minor Improvements for Traffic Engineering and Road Safety) — The following works under this heading were carried out during 1976-77 on Classified Roads.

<i>Huon Highway Junction with Sandfly Secondary Road</i>	\$1 873
Improvements to junction.	
<i>Boyer Secondary Road</i>	\$38 993
Improvement to crest near Australian Newsprint Mills and adjustment to loadometer station.	
<i>Bass Highway/Stanley Highway Junction</i>	\$64 835
Improvements to junction.	
<i>Batman Developmental Road</i>	\$56 665
Realignment.	
Works Related to Tasman Bridge Disaster	\$1 234 114
<i>East Derwent Highway (Old Beach Road)</i> —	
Completion of construction and maintenance.	
<i>East Derwent Highway (East Risdon Road)</i> —	
Continuation of construction to practical completion of new route from Geilston Bay to Shones Corner by Roche Bros. as contractors. Ancillary works as Departmental responsibility.	
<i>East Derwent Highway (Lindisfarne Main Road)</i> —	
Continuation to near completion by Clarence Council of reconstruction of existing 2-lane road to four lanes between Lincoln Street and Derwent Avenue.	
<i>Tea Tree Road</i> —	
Continuation of improvement to existing road drainage; repair of failures in pavement and routine maintenance.	
<i>Middle Tea Tree Road</i> —	
Continuation of improvement to existing road drainage; repair of failures in pavement and routine maintenance.	
<i>Midland Highway</i> —	
Junction improvement Casuarina Crescent.	
<i>Grass Tree Hill Road</i> —	
Light resheet and patching gravel part.	
<i>Dowsings Point and Goodwood Road</i> —	
Continuation of improvement to existing road drainage; repair of failures in pavement and routine maintenance.	
<i>Goodwood Road — Junction Northern Outlet Road</i> —	
Completion of construction by Glenorchy City Council.	
<i>Conversion Risdon Road Roundabout</i> —	
Completion of construction by Hobart City Council.	
<i>Howard Road Roundabout</i> —	
Alterations to Showground building associated with Goodwood Road junction with Northern Outlet Road.	
<i>Lindisfarne Main Road, Signs, etc.</i> —	
Installation of signs and line marking on new work by Department.	

Appendix 4

SEALS AND RESEALS COMPLETED, 1976-77

The following table shows the sealing, resealing and hot mix work completed on Classified Roads in each District during the year.

Road	Hot Bitumen Sprayed Seal		Hot mix	Total
	Prime & Seal	Reseal		
	km	km	km	km
<i>South-East District—</i>				
Arthur Highway	....	....	0.78	0.78
Brooker Avenue	....	....	1.07	1.07
Eastern Outlet	0.50	....	....	0.50
Huon Highway	0.75	10.43	6.24	17.42
Midland Highway	4.43	0.33	6.59	11.35
Northern Outlet Road	0.70	....	....	0.70
Southern Expressway	....	....	1.74	1.74
Tasman Highway	0.53	16.71	2.68	19.92
Bruny Main Road	....	3.13	....	3.13
Elderslie Main Road	3.75	....	....	3.75
Fenton Main Road	....	....	6.32	6.32
Kingston Main Road	....	....	0.40	0.40
Rokeby Main Road	....	....	0.60	0.60
Boyer Secondary Road	....	0.24	....	0.24
Grass Tree Hill Secondary Road	0.65	1.58	1.40	3.63
Sandfly Secondary Road	3.45	0.93	....	4.38
<i>North-West District—</i>				
Bass Highway	33.39	6.49	9.22	49.10
Bass/Stanley Highways Junction	1.37	....	....	1.37
Waratah Highway	....	1.32	0.77	2.09
Frankford Main Road	....	4.66	1.12	5.78
King Island Main Road	....	8.34	....	8.34
Mersey Main Road	2.65	....	....	2.65
Ridgely Main Road	....	....	2.18	2.18
Wilmot Main Road	....	8.95	....	8.95
Olivers Tourist Road	....	9.51	....	9.51
<i>North-East District—</i>				
East Tamar Highway	3.00	....	1.60	4.60
Midland Highway	....	6.83	....	6.83
Tasman Highway	4.10	23.40	....	27.50
West Tamar Highway	....	....	1.00	1.00
Blessington Main Road	4.04	6.50	....	10.54
Esk Main Road	2.70	....	....	2.70
Low Head Main Road	0.65	....	....	0.65
Rowella Main Road	....	1.60	....	1.60
Pipers River Secondary Road	2.30	....	0.70	3.00
Batman Developmental Road	0.40	....	....	0.40
Paterson Bridge	1.60	....	....	1.60
<i>West Sub-District—</i>				
Lyell Highway	....	7.55	....	7.55
Murchison Highway	....	7.77	....	7.77
Zeehan Highway	....	5.07	....	5.07
Totals	70.96	131.34	44.41	246.71

In addition to the above, hot mix was applied to the following but no measurements of lengths were taken:—

Eastern Outlet — 431 Tonnes — Rosny Hill Interchange.

Northern Outlet — 578 Tonnes — Berriedale Interchange.

Southern Outlet — 2 456 Tonnes — Climbing Lanes.

Appendix 5

BRIDGEWORKS COMPLETED

Construction of the following bridgeworks was completed during the year.

Name of Bridge	Type	Total Cost \$
View Road Overpass—Burnie Highway System	Prestressed Concrete	592 995
Stoney Rise Main Road Underpass—Bass Highway (Devonport to Don)	Prestressed Concrete	416 136
Mayne Street Overpass—East Tamar Outlet Road	Prestressed Concrete	302 799
Lindisfarne Main Road Central Retaining Wall	Cantilever Reinforced Concrete Wall	228 100
Kelvedon Rivulet Bridge—Tasman Highway	Prestressed Concrete	145 296
Quoin Rivulet Bridge—Midland Highway (Mangalore to Oatlands)	Prestressed Concrete	139 649
Ferntree Glen Creek Bridge—Tasman Highway	Precast Concrete	137 597
Raminea Road Pedestrian Overpass—Lindisfarne Main Road	Steel and Concrete	117 585
Churchill Avenue Pedestrian Underpass	Concrete Box	111 607
Distillery Creek Culvert—Waratah Highway	Reinforced Concrete	73 429
Lady Nelson Creek Bridge—Pipers River Secondary Road	Precast Concrete	64 042
Ringarooma River Bridge—Pioneer—Garibaldi Road	Timber	62 216
Culvert (Lightwood Bridge)—Tasman Highway	Twin Cell Box Culvert	54 666
Glover Creek Bridge—Wilsdon St, Queenstown	Steel and Concrete	54 157
Pyramid Creek Culvert—Strahan/Zeehan Road	Reinforced Concrete Box Culvert	49 908
Taranna Creek Bridge—Nubeena Secondary Road	Precast Concrete	46 313
Dead Horse Creek Bridge—Pipers River Sec. Road	Precast Concrete	41 023
Barrett's Creek Culvert—Tasman Highway	Twin Cell Box Culvert	30 019
York Rivulet Bridge—Franklin St, George Town	Timber	28 122
South Esk River Bridge—Barnes Road	Timber and Steel	26 457
Figure of Eight Creek Culvert—Mersey Main Road	Concrete	24 753
Culvert on Tasman Highway	Single Cell Box Culvert Reinforced Concrete	23 247
Rocky Creek Bridge—Lilydale—Scottsdale Road	Timber	22 819

Name of Bridge	Type	Total Cost \$
Berriedale Pedestrian Underpass (Strathaven)—Brooker Highway	Reinforced Concrete Box	46450(Est)
Flowerdale River Bridge—Lapoinya Road	Timber	20 443
St George River Bridge—St Helens—Boat Harbour Road	Timber	18 899
Meander River Bridge—Cheshunt Road	Timber	18 744
Mountain River Bridge—Ranelagh Secondary Road	Timber	18 036
Sloop Rock Lagoon Bridge—Road to Gardens	Timber	16 386
Bridge on Pipers River Secondary Road	Steel and Concrete	16 271
Roger River Bridge—Roger River Secondary Road	Timber	16 022
Culvert on Mt Hicks Secondary Road	Twin Cell Box Culvert	13 980
Queen River Bridge—Lyell Highway	Steel and Concrete	13 940
Ringarooma River Bridge—Forsyth's Hill Road	Timber	13 436
Tyenna River Bridge—Fourfoot Road	Timber	10 223

Appendix 6

PLANNING AND DESIGN DIVISION

Planning and Design*Hobart Transportation Study Proposals*

A major review of transportation and land use is to commence in the 1977-78 financial year.

Hobart Eastern Outlet Road

Final design work and preparation of construction plans for the section of the above road between Rosny Hill and East Warrane has continued.

Second Hobart Bridge

Preliminary design of the road approaches to the Second Hobart Bridge has progressed to a stage where it has been possible to compile a major highway planning report for the use of the Joint Committee, comprised of representatives of the State and Federal Governments.

A seismic survey on both proposed road approaches as well as drilling in selected locations and a preliminary hydraulic report has enabled preparation of cost estimates and staging recommendations as part of this report which will go to final printing early next financial year.

A further task associated with this project has been to co-ordinate related studies being undertaken on behalf of the Joint Committee by Consultants. These major investigations have included Environmental, Developmental and Traffic Impact Studies which are now completed, as well as an Economic Evaluation of the Second Bridge Project currently in progress.

Tasman Bridge Widening

The necessary design for widening the eastern road approaches to match the bridge widening has been completed.

Southern Outlet Road

Minor design work associated with the construction of a northbound overtaking lane between the 'Lea' and Mount Nelson junction has been undertaken.

Launceston Area Transportation Study Review 1977-78

The Division has been involved in preliminary route location and design for alternative highway links being considered by the above Study. This work has included checking for feasibility and the preparation of preliminary order of cost estimates.

East Tamar Outlet (Royal Park to Alanvale)

Planning for this project is substantially complete as is the detailed design for the Outlet Road itself. Final design for the Mowbray and Alanvale Connectors has been deferred pending decisions on these links and their priority by the L.A.T.S. Review.

The design and construction work being carried out by the Launceston City Council, on behalf of the Department, is now almost complete except for some minor works in Goderich Street.

Eastern By-Pass

Evaluation of this proposal for inclusion in the National Highway System has been carried out by the Commonwealth Bureau of Roads.

Midland (National) Highway—Perth By-Pass

Previous planning proposals for this by-pass are being reconsidered in the light of National Highway requirements and also the planning objectives set down by the Tamar Regional Master Planning Authority. This latter Authority is currently preparing a Planning Scheme for the Municipality of Evandale.

Burnie Highway System—Stage A

A National Highway Planning Report and Environmental Impact Statement were prepared for proposed improvements to the Alexander Street/North Terrace junction.

Burnie Highway System—Stage B

Preliminary design, including staging possibilities, has continued in outline form.

Bass (National) Highway—Marine Terrace, Burnie

This scheme was brought forward for construction at short notice and the design is substantially complete.

Bass (National) Highway—Penguin to Burnie

Topographical maps covering the area from Somerset to Penguin, including both the coastal and proposed inland route, have been made and aerial survey is now being carried out to provide the necessary information to allow preliminary planning to commence.

Bass (National) Highway—Devonport to Latrobe

Formulation of proposals for this highway was carried out in conjunction with Messrs GHD Parsons Brinckerhoff, Transportation Consultants, who are preparing a National Highway Planning Report for the Department.

ENVIRONMENTAL STUDIES*Burnie*

Proposed Works at Alexander Street/North Terrace.

An environmental impact statement was prepared for this proposal as it involved relocation of a railway line and partial alienation of a foreshore recreation reserve. The Tasmanian Department of the Environment gave the project environmental approval.

Kempton By-Pass

Previous work on this project had not been consolidated into an environmental impact statement. Due to the need for early consideration of the project, the Department of the Environment agreed to accept a document incorporating previous work in lieu of a formal environmental impact statement.

Deloraine By-Pass

Planning documents produced by consultants were submitted to the Department of the Environment for assessment. Additional work was undertaken to assess the environmental impact of various alternatives to assist in determining which route should be favoured. Environmental approval has been obtained subject to the provision of further information on noise, aesthetics and landscaping.

Longford Deviation

An environmental impact statement was prepared for this proposal and has been submitted to the Tasmanian Department of Environment. Approval on environmental grounds has been obtained for the project as a whole but agreement on the most satisfactory line of the link road into Longford is being negotiated.

Other Work

Additional work has included site inspection and environmental assessment for projects at St Marys Pass, Margate to Snug on the Channel Highway, the Huon Highway near Franklin and the Tasman Highway from Sorell to Forcett. The historical study for the Midland Highway is nearing completion and the 1976-77 Budget was examined to determine which projects had environmental significance.

Appendix 7

CIVIL DESIGN SECTION

The work of the Section in 1976-77 followed the now established pattern, with approximately 50 per cent of time being taken up in bridge and road hydraulics and sundry drainage matters and the remainder spread over such things as marine works and coastal erosion problems.

Hydraulics

Only one flood of medium intensity in the north of the State caused relatively minor flooding problems that required the attention of the Section.

Special attention was given during the year to the design of inlet and outlet structures for culverts, particularly those with long barrels forming part of the National Highways construction. The investigation has not been finalised nor many structures completed so the actual results of the study remain largely to be determined.

Continuous hydraulic survey was undertaken on a total of 36 km of road prior to reconstruction, including Hobart Eastern Outlet Road (2.6 km) and sections of the Bass, Channel, Midland and Tasman Highways and the Zeehan to Strahan Link Road.

A total of forty-seven separate hydraulic investigations were undertaken and reports prepared for bridges and culverts, including sections of the Brooker Highway Extension, some sections of the Midland Highway, and culverts and bridges in the Launceston area.

Assistance with liaison and data was provided for the consulting engineers commissioned to investigate and report (as a second opinion) on the complex hydraulic problems associated with a flood free access to Longford including the bridging of the South Esk River in the Longford floodplain.

Technical advice and data was provided in connection with the design of a pumping station at Lytton Street, Launceston. This unit is to deal with flow from the City Council's drainage system and the drainage from the Department's East Tamar Outlet Road. An agreement has been entered into with the Council being responsible for design and construction and for costs to be apportioned between the two authorities.

Miscellaneous and special hydraulic investigation and designs numbered twenty-four, including such works as:—

The provision of a water supply to Triabunna Slipway was further investigated and is expected to be provided in 1977-78 when agreement should be reached between the various parties concerned.

The compilation of the required brief, the provision of advice, data and liaison to the Clarence Council and the engineering consultants preparing the design for alteration of services and special drainage requirements in the area of the intersection of the Hobart Eastern Outlet Road and Dampier Street. Special hydraulic investigations and provision of technical advice to planning officers for the improvements to Bowen Park.

Launceston Flood Protection Works

The Launceston City Council proceeded with capital works and maintenance in accordance with their agreement with the State. The Section continued to provide engineering advice and check on the expenditure for capital works carried out by the Council on behalf of the State. During the year the Council expended only \$24 047 on capital works on the levees which was well below the \$80 000 provided in the budget. The under-expenditure was due to design and construction difficulties experienced by the Council, mainly in connection with drainage works through the levee embankments.

Harbour Works

Liaison was maintained with the Treasury concerning the Port of Grassy, King Island, in particular on matters relating to the finalisation of the agreement with the Marine Board for taking over the Port. Attention was also given to an erosion problem caused by wave action along the length of the wharf and resulting in settlement of the fill adjacent to run-on slabs near the loading ramp.

Periodic observations (survey and aerial photographs) into the effect of the training works and sand movements continued at the mouth of Georges Bay. Principally in an endeavour to control erosion in the dunes seaward of the training wall, the height of the existing training wall was increased to 1.8 m above H.W.M. over the full length at a cost of approximately \$64 000. Work was completed near the end of the financial year. Results so far are encouraging with good build up of sand which, if it continues, will protect the dunes against wave erosion.

Jetties, Slipways and Fishing Facilities

Waub's Bay, Bicheno

The construction of the small boat landing breakwater was completed and extended by approximately 13 m at the request of the local fishermen. The breakwater is now approximately 61 m in length and provides good shelter.

Other work done at Bicheno was the removal of the piles remaining from the old jetty at Waub's Bay (at the request of the Hobart Marine Board), the extension of the boat landing by approximately 10 m, and the removal of rocks from the underwater approach to the boat ramp in the Gulch area.

Kettering Jetty

A design was prepared and construction commenced on a new timber jetty at Kettering primarily for use by fishermen in the area.

Dunalley Slip Duplication

Site work was virtually completed in 1976-77. Fabrication of carriages and cradles in the workshops and site installation of these components will be carried out in 1977-78.

Mitchell's Slipway, Dover

A design was prepared for a slipway at the site of Mitchell's boat building works. Construction is expected to commence and will possibly be completed in 1977-78.

Long Beach Jetty, Sandy Bay

Alternative designs for a jetty both in timber and timber/steel construction were completed. This structure is being provided by the State to replace the previous jetty which was damaged by wave action and subsequently demolished. Construction is expected to proceed during 1977-78.

Stanley Fishermen's Dock

The painting of the structural steelwork on the finger piers was completed.

Binalong Bay Boat Haven

Extensive repairs were undertaken on the breakwater jetty which is now in good condition. Investigations were commenced as a result of a request by fisheries inspectors for an additional breakwater to protect the boat launching ramp. These investigations will be completed and a report prepared early in 1977-78.

Bruny Ferry Terminals

Existing Berths—Repairs costing approximately \$4 500 were undertaken in order to keep berths in an operable condition.

At the request of the Transport Commission, Maunsell and Partners, prepared a report on the upgrading of the existing ferry berths to make these suitable for use by the 'Harry O'May' until the new terminals are completed and also for use subsequently as 'back up' berths if necessary.

New Terminals.—The Consulting Engineers, Maunsell and Partners presented a preliminary report on the Kettering and Barnes Bay sites in October 1976 and a final report in December 1976.

As a result of a request from the Transport Commission, Maunsells undertook the investigation of alternative sites on Bruny Island and presented further reports on these in December 1976 and May 1977. The latter report dealt with a site at Roberts Point which has now been approved as the site for the new terminal on Bruny Island.

Maunsells have now been instructed to proceed with final design and the preparation of tender documents for the new terminals at Kettering and Roberts Point. A firm of Hobart Consulting Engineers, Fowler, England and Newton, have been retained as Sub-Consultants to produce the design for the 3.7 km of new road and 5.0 km of existing road reconstruction which will be required to give land access to the Roberts Point Terminal.

The current estimated date for completion of the new terminals, and for their operational use, is March 1979.

Smithton Wharf

Funds were made available to the Circular Head Marine Board for continuing maintenance on this large and dilapidated structure. These were largely spent on materials for repairs planned for 1977-78.

Isle of Dead Jetty

Inspection was undertaken and a report on damage and an estimate for repairs was prepared for the National Parks and Wildlife Department.

Port Arthur Jetty

An inspection was undertaken at the request of the Tasman Council concerning repairs to jetty fendering and extension of the jetty. Repairs will be effected in 1977-78 and a report still has to be completed in regard to the proposed extension.

Work for Marine Authorities

Plans for a proposed slipway at Currie submitted by the Marine Board of King Island with a submission for Government assistance were examined at the request of the Treasury. A report was prepared giving technical approval in principle subject to the adoption of certain amendments in design and submission of final working drawings for approval.

Miscellaneous Investigations, etc.

(a) Sections of the Uniform Building Code relating to water supply and drainage were the subject of study and report.

(b) A proposed boat ramp for the Bellerive Yacht Club at Kangaroo Bay was investigated and referred to the Department of Lands.

(c) The computer requirements of the Civil Design Section were investigated and a report prepared.

(d) Proposals for additional boat ramps in the Spring Bay area and training of the mouth of the Prosser River at Orford were investigated and a report prepared. The training of the mouth of the Prosser was not recommended because of the high cost but an additional boat ramp was recommended at Orford or Shelley Beach.

(e) A request by the local Council for Government assistance with repairs to the sea wall at Strahan was investigated and a report prepared. It was pointed out that this was not the responsibility of the Department of Main Roads but rather that of the Department of Lands.

(f) Plans and specifications were prepared for the raising and strengthening of Lake Dulverton weir for the Oatlands Council. Tenders were called by the Council but technical assistance with inspection etc., was provided by the Section during and at the completion of construction.

Appendix 8

ROAD CONSTRUCTION PLANT SUSPENSE ACCOUNT

Income and Expenditure Statement

Period ending 27-3-76		Period ending 27-3-77
\$		\$
5 516 969	INCOME—	5 265 029
3 479 648	Earnings—	3 420 014
3 023	Plant Hire	6 259
114 659	Workshop Charges	221 938
	Other Income	
	Net Profit on Sale of Plant and Stores and Stocktaking Adjustments	
<u>9 114 299</u>		<u>8 913 240</u>
	EXPENDITURE—	
3 826 773	Plant Operation & Maintenance	3 868 355
3 056 000	Workshop Operation	3 277 034
273 426	Plant Depot Administration and Maintenance	351 331
664 697	Provision for Depreciation of Plant Equipment and Buildings	865 067
12 500	Provision for Plant Accident Fund .....	....
21 749	Net Loss on Sale and Write-off of Plant Stores and Stocktaking Adjustments	4 978
<u>7 855 145</u>		<u>8 366 765</u>
1 259 154	Excess of Income over Expenditure for Period	546 475
<u>9 114 299</u>		<u>8 913 240</u>

BALANCE SHEET

1976	NATURE AND SOURCE OF FUNDS USED—	1977
\$		\$
194 607	Funds provided by State Treasurer—	
	Valuation of Plant and Equipment held at 30 June 1976 and	
	Stock on Hand as at 30 June 1977	194 607
3 010 100	Loan Funds	3 010 100
6 769	Commonwealth Grant	6 769
309 434	State Highways Trust Fund	309 434
900 000	Plant Replacement Reserve	1 225 000
1 116 050	Accumulation Account	1 337 526
		6 083 436
	Current Liabilities—	
108 602	Sundry Creditors Store	92 053
308 632	Plant Accident Insurance	422 128
		514 181
	Provisions—	
16 936	Motor Vehicle Insurance	17 483
12 743	Plant Accident Insurance	6 064
		23 547
5 983 873		6 621 164
	THESE FUNDS ARE REPRESENTED BY—	
	Current Assets—	
414 820	Cash at Treasury	236 747
330 865	Stock on Hand	339 144
14 219	Work in Progress—Deferred Charges	21 624
	Accrued Charges—	
642 448	Plant Hire	\$501 172
46 900	Stores Issues	81 594
256 389	Workshop	305 238
	Depot Improvement	12 375
	Apprentice Tool Kits	2 434
		902 811
		1 500 326
	Fixed Assets—	
9 600 012	Land, Buildings, Plant and Equipment at cost	10 626 215
—(5 321 780)	Less—Provision for Depreciation	—(5 505 377)
		5 120 838
5 983 873		6 621 164

STATEMENT OF SOURCE AND APPLICATION OF FUNDS

1976		1977
\$		\$
1 259 154	SOURCE OF FUNDS—	546 475
664 697	Profit from Operations	865 067
	Add—Non Cost Item—Depreciation	
1 923 851		1 411 542
112 053	Less—Profit on Sale of Plant less Costs	218 260
1 811 798	Proceeds Sale of Plant	1 193 282
163 619	Proceeds from Loan Funds	316 168
400 000	Decrease in Working Capital	302 263
1 503	Increase in Provision for Motor Vehicle Insurance	547
12 023	Increase in Provision for Plant Accident Fund	....
\$2 388 934		\$1 812 260
	APPLICATION OF FUNDS—	
766 769	Increase in Working Capital	....
....	Decrease in Provision for Plant Accident Fund	6 679
12 792	Improvements to Plant Depots	59 136
192 207	Purchase of New Plant	476 529
1 403 096	Purchase of Replacement Plant	1 239 612
14 070	Purchase of Workshop Equipment	30 304
\$2 388 934		\$1 812 260